

DR. EVA C. HERBST

POSTDOCTORAL FELLOW IN SHOULDER BIOMECHANICS

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[Website](#) - [Github](#) - [GoogleScholar](#) - [Figshare](#) - [Publons](#) - [Orcid](#)

EDUCATION

OCT 2016 - APR 2020	PhD in Biomechanics and Palaeontology <i>Advisor: John Hutchinson, Structure & Motion Lab, Royal Veterinary College, London</i>
AUG 2012 - MAY 2016	B.A. in Integrative Biology <i>U.C. Berkeley</i>
OCT 2013 - JUN 2014	Certificate of Higher Education in Biomedical Sciences <i>Durham University, Year of Study Abroad</i>

EMPLOYMENT & RESEARCH EXPERIENCE

MAR 2023 - PRESENT	Postdoctoral Fellow: Patient Specific Computational Shoulder Biomechanics <i>ETH & Schulthess Clinic, Zurich</i>
DEC 2019 - NOV 2022	Postdoctoral Researcher: Skull Biomechanics of Triassic Reptiles <i>Palaeontological Institute & Museum, University of Zurich</i>
OCT 2019 - DEC 2019	OATech+ Network Early Career Researcher Placement: Knee Osteoarthritis <i>Skeletal Biology Group, Royal Veterinary College London</i>
MAY 2013 - JUL 2016	Undergraduate Research Assistant: Anatomy and Biomechanics Projects <i>U.C. Berkeley & University of Missouri</i>

TECHNICAL SKILLS

- biomechanical model development:** specializing in dynamically coupled finite element and multibody dynamic analyses
- in vivo kinematic analysis:** biplanar fluoroscopy
- ex vivo kinematic analysis:** cadaveric analysis with optical motion capture
- programs and languages:** Artisynt, Blender, 3D Slicer, Avizo, Mimics, Abaqus, Maya, Python, Java, R
- **additional skills:** dissections, image segmentation, photogrammetry, 3D modeling

HONORS & AWARDS

2021	D. Dwight Davis Award, Society of Integrative and Comparative Morphology Best student oral presentation in the Division of Vertebrate Morphology
2020	Swiss Commission of Palaeontology Prize Best presentation in palaeontology given at the Swiss Geoscience Meeting
2016	Franklin M. Henry Award, Integrative Biology, UC Berkeley Outstanding achievement in human performance and health research
2013 - 2016	Dean's Honors (2013,2015) & Distinction in General Scholarship (2016), UC Berkeley

GRANTS & FUNDING

2024	ETH Career Seed Award "Age-based Bone Density of the Glenoid: Method Development & Quantification of Patient Variation"	30,000 CHF
2024	Gesellschaft für Arthroskopie und Gelenkchirurgie Grant for establishing a Clinical Imaging Database of Shoulder Instability Patients	10,000 EUR
2024	Hamlyn Symposium for Medical Robotics Workshop Funding Organisation of Workshop: Open-Source Software for Surgical Technologies, London, June 2024	2,500 GBP
2023	Digital Switzerland Boost Programme Grant for attending Advanced 3D Slicer Programming Course	420 CHF
2021	ImagingBioPro Network Online Educational Material Grant Development of educational materials and code: mesh manipulation and trabecular segmentation	1,000 GBP
2020	University of Zurich GRC Grant Organization of finite element analysis conference (> 200 participants), resource platform development	10,000 CHF
2019	OATech+ Network Biomechanics and Mechanobiology Pump Priming Fund Research project 3D trabecular architecture as a biomarker to identify and monitor knee osteoarthritis	10,000 GBP
2019	OATech+ Network Early Career Researcher Placement Placement with Prof Andrew Pitsillides at RVC to work on osteoarthritis project (see above)	3,000 GBP
2018 2019	Royal Veterinary College Foreign Travel Fund 300 GBP each to present research at ICVM and SICB conferences	600 GBP
2016	Research Experience for Undergraduates, National Science Foundation Biomechanics research internship, University of Missouri	3,500 USD

PUBLICATIONS, PRESENTATIONS, TEACHING

- [15 peer-reviewed papers](#) (8 first author), [34 conference presentations](#) (19 presenting author)
- Further information on invited talks, workshops, and lectures [here](#).

SUPERVISION

- **Max Modelhart**, *Medical PhD on glenohumeral joint morphology (official title to be determined)*, Paracelsus Medical University (PMU), Salzburg, Austria (Co-supervisor, Ongoing)
- **Anna Luong**, Master's Thesis: *Development and analysis of personalized glenohumeral joint contact mechanics in healthy subjects*, ETH Zurich (Ongoing)
- **Liam Roth**, Master's Semester Project: *Cartilage morphology effects in patient specific biomechanical finite element glenohumeral joint models*, ETH Zurich (2024)
- **Jan Heres**, Master's Thesis: *Reconstruction of a patient-specific model of the humerus bone*. University of West Bohemia (acting as external supervisor) (2024)
- **Dennis Agbanyim**, Master's Thesis: *Phantomless bone density calculation: developing research software for patient-specific shoulder modeling*, ETH Zurich (2024)
- **Flavia Stettler**, Semester Project: *In vivo glenohumeral translations*, ETH Zurich (2024)
- **Dylan Bastiaans**, PhD Thesis: *Thalattosauriform digital functional anatomy*, UZH (2023)
- **Kehan Pan**, Semester Project: *Skull finite element analysis of Askeptosaurus*, ETH Zurich (2022)

OPEN-SOURCE WORK

- My [open source research tools](#) (e.g. bone segmentation algorithm, muscle modeling method) have been used in international, peer-reviewed studies both within and beyond our group.